

D320PL DIGITIZER

R9851550

OWNER'S MANUAL

Barco nv Events

Noordlaan 5, B-8520 Kuurne

Phone: +32 56.36.89.70

Fax: +32 56.36.88.24

E-mail: events@barco.com

Visit us at the web: www.barco.com

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This equipment has been tested and found to comply with the limits for a class A digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area may cause harmful interference, in which case the user will be responsible for correcting any interference.

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1. SAFETY

1.1 Important Safety Instructions

Instructions:

- Read these instructions.
- Keep these instructions.
- Heed all warnings.
- Follow all instructions.
- Do NOT submerge fully or partly in water or other liquids.
- Clean only with materials or chemicals that are inert, nonabrasive, noncorrosive and non-marking. Consult the manufacturer for further advice should any doubts exist regarding any cleaning procedure.
- Do not block ventilation openings. Install in accordance with the manufacturers instructions.
- Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
- Do not defeat the safety purpose of the polarized or grounding type plugs/sockets. If the provided sockets / plugs are damaged then replacement of the defective parts must be undertaken immediately.
- Protect the power/data cords from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus. Replace damaged power/data cords immediately.
- Only use attachments/accessories specified by the manufacturer.
- Disconnect the power to this apparatus during lightning storms or provide suitable additional lightning protection. Unplug this apparatus when unused for long period of time.
- Refer all servicing to qualified service technicians/personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, the apparatus does not operate normally, or has been dropped.
- Use only with systems or peripherals specified by the manufacturer, or sold with the apparatus. Use caution during lifting/moving or transporting to avoid damage by possible tipping.

1.2 Important Warnings

Important Warnings:

- **Risk of electric shock:**

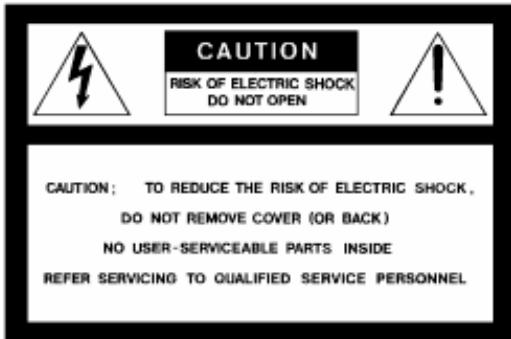


Image 1-1
Risk of electrical shock

Risk of electric shock. Do not open. To reduce the risk of electric shock, do not remove cover (or back). No user-serviceable parts inside. Refer servicing to qualified service personnel.

The lightning flash with an arrowhead within a triangle is intended to tell the user that parts inside this product may cause a risk of electrical shock to persons.

The exclamation point within a triangle is intended to tell the user that important operating and/or servicing instructions are included in the technical documentation for this equipment.

- **Maximum ambient temperature:**

The maximum recommended ambient temperature for this equipment is 40 °C.

- **Flammable materials:**

Keep flammable materials away from the installation (such as curtains). A lot of energy is transferred into heat. The installation should be such that the amount of air flow required for safe operation of the equipment is not compromised. Proper ventilation must be provided.

- **This equipment MUST be earthed:**

In order to protect against risk of electric shock, the installation should be properly grounded. Defeating the purpose of the grounding type plug will expose you to the risk of electric shock. This apparatus must be grounded (earthed) via the supplied 3 conductor AC power cord. (If the supplied power cord is not the correct variant, consult your dealer.)

- **Power system:**

It is recommended to use a TN-S power distribution system (a power distribution system with a separate neutral and grounding conductor) in order to avoid large ground currents loops due to voltage differences in the neutral conductor. The total electrical installation should be protected by an appropriate rated disconnect switch, circuit breakers and Ground Fault Current Interrupters. The installation shall be done according to the local electrical installation codes. In Europe special attention should be given to EN 60364, the standard for electrical installation of buildings. In Germany VDE 0100 should be adhered to.

- **Mains cords:**

The power cords delivered with this system have special properties for safety. They are not user serviceable. If the power cords are damaged, replace only with new ones. Never try to repair a power cord.

- **Use of an extension cord:**

If an extension cord is used with this product, make sure that the total of the ampere ratings on the products plugged into the extension cord does not exceed the extension cord ampere rating. Also make sure that the total of all products plugged into the wall outlet does not exceed 15 amperes.

- **Cabinet openings:**

Never push objects of any kind into this product through cabinet slots as they may touch dangerous high voltage points or short out parts that could result in a risk of fire or electrical shock.

Never spill liquid of any kind on the product. Should any liquid or solid object fall into the cabinet, unplug the set and have it checked by qualified service personnel before resuming operations.

1. Safety

2. INTRODUCTION

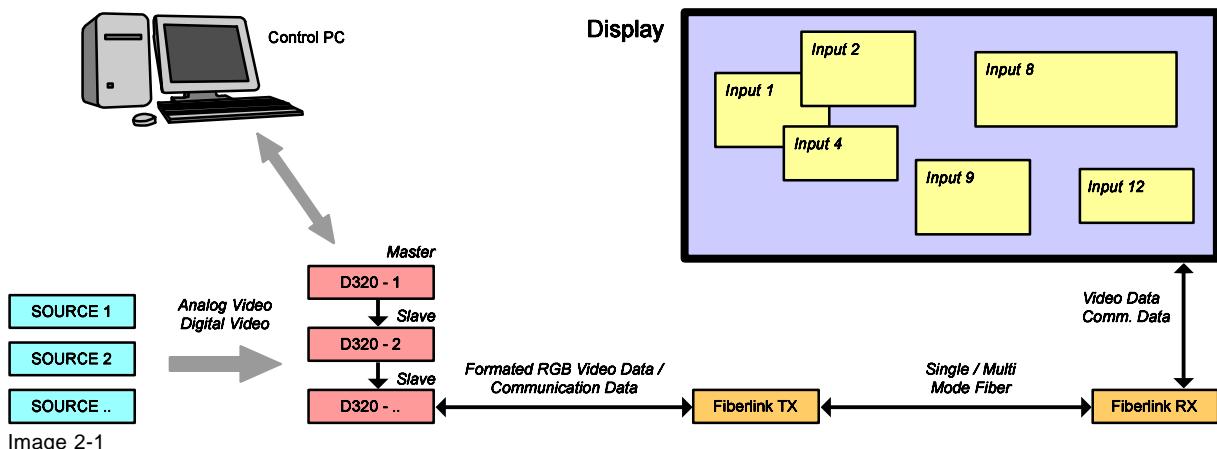
2.1 General functionality

Overview

The D320PL is a video processing device, designed to drive as well Barco LED walls as large screen projectors, monitors, plasma screens, ... etc. The D320PL is capable of handling all standard output formats like SVGA, XGA, SXGA and UXGA on an analog RGBHV and digital DVI output.

The D320PL Digitizer allows you to control up to 4 sources on one display. Seamless switch from source to source or display sources together, overlay them, customize them. With analog and digital outputs which allow for the control of displays, as well as built-in-control software, the D320PL gives you control over everything from basic set-up to configuration and advanced feature control.

The D320PL Digitizer is a generic device. This means that a number of combinations can be made. Devices can be chained in order to generate more windows on the output (4 windows per device). Devices can also be stacked in order to be able to split generated output of the devices to multiple screens. For latter purpose, each input is equipped with an active loop through.



2.2 Order info D320PL Digitizer

Order info:

Article No.	Description
R9851550	D320PL Digitizer

2.3 Technical summary

Summary

Type	Value
Input slots	4 input slots, front accessible, auto sensing and hot swappable

2. Introduction

Type	Value
Compatibility	Barco Daylight / ILite Displays and large screen projectors, monitors, plasma screens...
Output	DVI-A, DVI-D, Barco LED protocol
Scalability	Chaining for more inputs, stacking for more displays
Flexibility	User defined input
Scaler	4 input channels [Data-Video] fully independent scalable to desired output resolution
Z-order control	Instant modification of Z-order control, for each output window
Window Positioning	Intuitive positioning interface
Connectors	RS 232 [RJ 11] — Ethernet [RJ 45]
Effects	Anamorphic imaging, Chroma keying [per input], Alpha keying [per input], Z-order control, Windowing/ View ports
Ruggedness	IP 10
Dimensions D320PL	486 x 482 x 53 (W x D x H)
Dimensions D320 Input Units	41 x 181 x 103 (W x D x H)
Weight	± 7 kg
Operating Temperature	0 °C <> 45 °C
Power consumption	130 Watt max at 85–264 Volt (50–60 Hertz)
Stacking	Up to 64 units (for 64 different displays)
Chaining	Up to 64 units (for 256 inputs)

2.4 Dimensions of the D320PL Digitizer

Dimensions

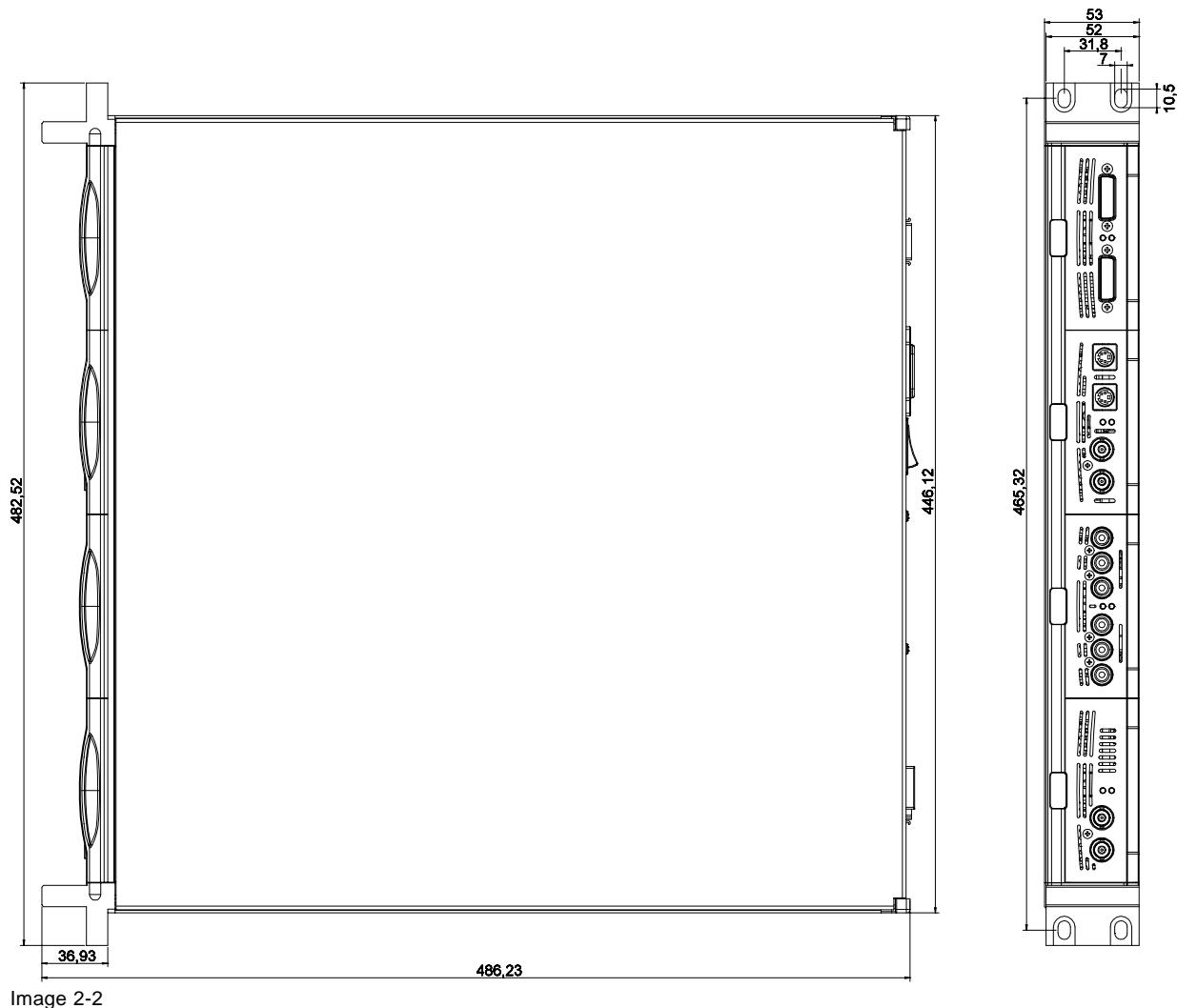


Image 2-2

2. Introduction

3. PHYSICAL INSTALLATION OF THE D320PL DIGITIZER

3.1 Installation requirements

Requirements

- The D320PL Digitizer should not be placed in a built-in installation or enclosure unless proper ventilation is provided.
- When using the unit in a multi-unit rack assembly or closed assembly, the ambient temperature inside the assembly may not exceed the maximum rated ambient temperature of the Digitizer. The installation should be such that the amount of air flow required for safe operation of the equipment is not compromised.
- When building in the D320PL Digitizer into a rack with cover door, be aware that a space of 8,5 cm is needed between the indicated reference and the cover door. This space is needed to guide the input cables to the inputs.

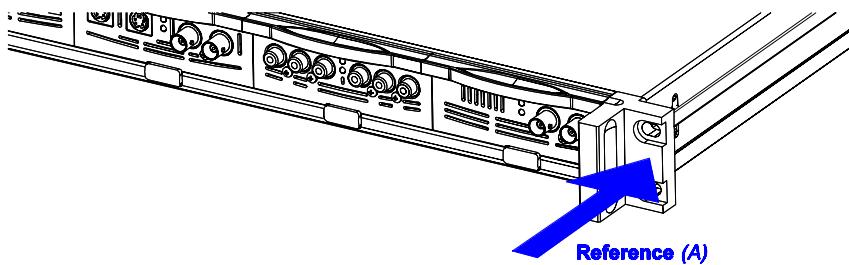


Image 3-1

A Reference

- The D320PL Digitizer will require that air flows freely in vent holes. Blocking these holes will greatly reduce the reliability of the unit and lead to the possibility of overheating.
- The D320PL Digitizer should operate from an AC power source. The D320PL Digitizer is equipped with Power Supply Autoranging from 85 to 264 volt (50–60 Hertz).
- When installed in a rack, the mounting should be such that no hazardous condition is achieved due to uneven mechanical loading.
- When the mains switch located on the back of the D320PL Digitizer is not accessible due to rack mounting, the socket outlet supplying the rack shall be installed near the equipment and be easily accessible or a readily accessible disconnect device shall be incorporated in the fixed wiring. When using a rack in an installation is advisable to log the serial number of the device and to activate the warranty figure by registering utilizing the included form.
- Do not place the D320PL Digitizer on an unstable cart, stand or table. The device may fall, causing serious damage to it.

3.2 Connections

Rear panel inputs/outputs

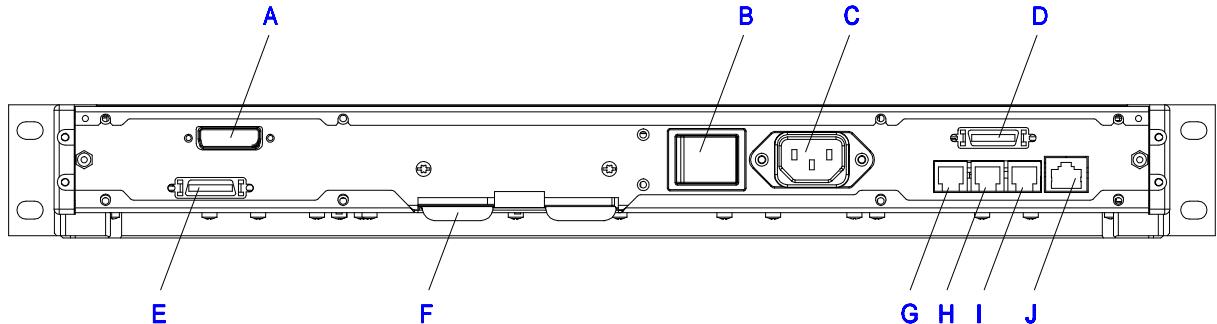


Image 3-2

- A LED-WALL / PROJECTOR OUTPUT
- B Power Switch
- C Power input
- D LOOP IN
- E LOOP OUT
- F Retractable dust filter
- G COM1 : RS232 input
- H COM2 : RS232 chaining output
- I COM3 : RS232 stacking output
- J TCP-IP : Ethernet LAN connector

- **A : LED-WALL / PROJECTOR OUTPUT (DVI output connector with 3 functions)**
 - LED wall out (Barco proprietary protocol).
 - RGB HV out (analog).
 - DVI digital out. (DVI compliant, eg: monitor, projector, plasma, ...)
- **B : Power switch**
 - The power ON/OFF switch is provide on the rear side of the Digitizer.
 - Switch pressed to 1 = the unit starts.
 - Switch pressed to 0 = unit totally switched off.
- **C : Power input**
 - Autoranging from 90 to 260 VAC / 130 Watt.
- **D : LOOP IN**
 - From previous D320PL Digitizer.
 - Panel Link MDR26.
 - Used for chaining multiple D320PL digitizer to increase the number of usable input sources.
- **E : LOOP OUT**
 - To next Digitizer.
 - Panel Link MDR26.
 - Used for chaining multiple digitizer to increase the number of usable input sources.
- **F : Retractable dust filter**
 - The fan intake grill of the Digitizer has a retractable dust filter. This filter can be retracted from the back of the unit. Check the filter for good functionality on a regular basis. Never allow this filter to become blocked up and never operate the unit without a good working air filter in place.
- **G : COM1 : RS232 input**
 - Direct master.
 - RS232 input port for communication links with local PC.
- **H : COM2 : RS232 chaining output**
 - RS232 output port for communication links from other D320PL Digitizers in chain configuration
- **I : COM3 : RS232 stacking output**
 - RS232 output port for communication links from other D320PL Digitizers in stacking configuration.
- **J : TCP-IP : Ethernet LAN connector**
 - For future use.

3.3 Removing and inserting a D320PL Digitizer input module



There is no need to switch off the D320PL Digitizer to remove or insert an input module. The input modules are hot swappable.

How to remove an input module from the D320PL Digitizer

1. Push in the release button underneath the input module which you want to remove. At the same time pull out the input module by the grip handle. (image 3-3)

3. Physical Installation of the D320PL Digitizer

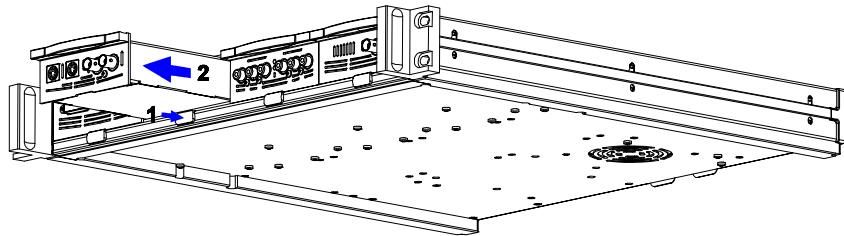


Image 3-3

How to insert an input module into the D320PL Digitizer

1. Gently slide in the input module into a free input slot with the grip handle at the top.
2. Locking in the module by pushing the input module completely into the D320PL Digitizer until a definite click is audible.



Maximum two HDSDI input modules may be inserted in one D320PL Digitizer.

4. INPUT MODULES

Overview

- DVI input module
- SDI input module
- HDSDI input module
- CVBS / S-VID input module
- YUV / RG(s)B input module
- RGB analog input module
- Dummy input module

4.1 DVI input module

Technical info:

- Computer generated graphical source.
- DVI data in.
- 162 MHz pixel clock.
- Resolution from VGA to UXGA/60 Hz.
- DVI compliant.
- DVI loop through.
- Amber LED (upper LED on the front side) will be lit indicating module start up.
- When placed in an input slot the green LED (lower LED on the front side) will be lit indicating that the system acknowledges the module.



Image 4-1

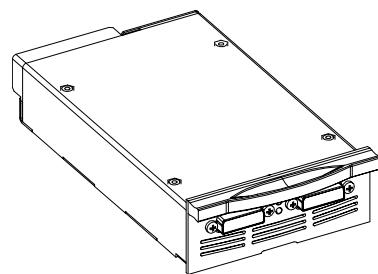


Image 4-2

Order info:

Article No.	Description
R9850960	D320PL Digitizer DVI input module

4.2 SDI input module

Technical info:

- SDI data in.
- SDI loop through.
- 270Mbit/s transmission (SMPTE 259M-C).
- 525/625 interlaced.
- Coax (75 Ohm).
- Amber LED (upper LED on the front side) will be lit indicating recognition of film, either continuous or intermittent film detection.
- When placed in an input slot the green LED (lower LED on the front side) will be lit indicating that the system acknowledges the module.



Image 4-3

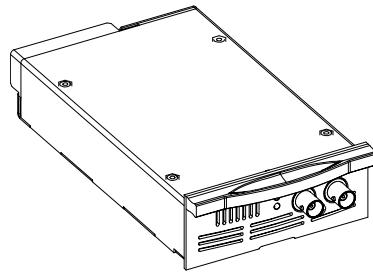


Image 4-4

Order info:

Article No.	Description
R9850970	D320PL Digitizer SDI input module

4.3 HDSDI input module



Maximum two HDSDI input modules may be inserted in one D320PL Digitizer.

Technical info:

- HDSDI data in (SMPTE292M).
- HDSDI loop through (SMPTE292M).
- Coax (75 Ohm).
- When placed in an input slot the green LED (lower LED on the front side) will be lit indicating that the system acknowledges the module.
- Supported HDSDI standards:
 - Progressive:
 - 1280x720/60/1:1/ (SMPTE 296M)
 - 1280x720/59.94/1:1/ (SMPTE 296M)
 - 1920x1080/30/1:1/ (SMPTE 274M)
 - 1920x1080/29.97/1:1/ (SMPTE 274M)
 - 1920x1080/25/1:1/ (SMPTE 274M)
 - 1920x1080/24/1:1/ (SMPTE 274M)
 - 1920x1080/23.98/1:1/ (SMPTE 274M)
 - Interlaced:
 - 1920x1035/60/2:1/ (SMPTE 260M)
 - 1920x1035/59.94/2:1/ (SMPTE 260M)
 - 1920x1080/60/2:1/ (SMPTE 274M)
 - 1920x1080/59.94/2:1/ (SMPTE 274M)
 - 1920x1080/50/2:1/ (SMPTE 274M)
 - 1920/1080/50/2:1 (1250)/ (SMPTE 295M)
 - 1920x1080/24/Segmented/ (SMPTE 274M)
 - 1920x1080//23.98/Segmented/ (SMPTE 274M)



Image 4-5

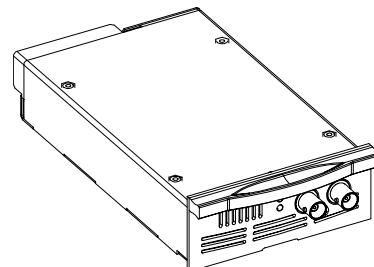


Image 4-6

Order info:

Article No.	Description
R9850980	D320PL Digitizer HDSDI input module

4.4 CVBS / S-VID input module

Technical info:

- Video (BNC)
 - CVBS : 1Vpp \pm 3dB (0,7V Video +0,3V Sync) 75 Ohm termination.
 - BNC loop through connector.
- S-Video (4 pins DIN)
 - Y : 1Vpp \pm 3dB (0,7V Video +0,3V Sync) 75 Ohm termination.
 - U/V : 0,7Vpp \pm 3dB 100% color base, 75 Ohm termination.
 - Chroma : Multi-Standard (PAL / SECAM / NTSC).
 - 4 pins DIN loop through connector.
- Amber LED (upper LED on the front side) will be lit indicating recognition of film, either continuous or intermittent film detection.
- When placed in an input slot the green LED (lower LED on the front side) will be lit indicating that the system acknowledges the module.



Image 4-7

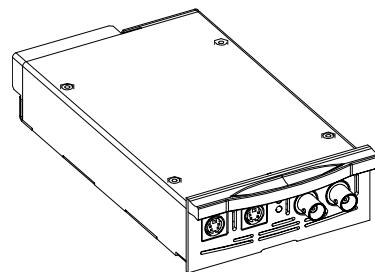


Image 4-8

Order info:

Article No.	Description
R9850920	D320PL Digitizer CVBS / S-VID input module

4.5 YUV / RG(s)B input module

Technical info:

- Component Video (BNC)
 - R-Y : 0,7Vpp \pm 3dB 75 Ohm termination.
 - Ys : 1Vpp \pm 3dB (0,7V Luma +0,3V Sync) 75 Ohm termination.
 - B-Y : 0,7Vpp \pm 3dB 75 Ohm termination.
- RG(s)B (BNC)
 - R : 0,7Vpp \pm 3dB 75 Ohm termination.
 - G(s) : 1Vpp \pm 3dB (0,7Vpp G + 0,3Vpp Sync) 75 Ohm termination.
 - B : 0,7Vpp \pm 3dB 75 Ohm termination.
- 3 BNC's loop through connectors.
- Amber LED (upper LED on the front side) will be lit indicating recognition of film, either continuous or intermittent film detection.
- When placed in an input slot the green LED (lower LED on the front side) will be lit indicating that the system acknowledges the module.



Image 4-9

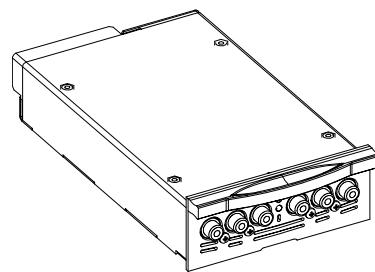


Image 4-10

Order info:

Article No.	Description
R9850940	D320PL Digitizer YUV / RG(s)B input module

4.6 RGB analog input module

Technical info:

- Sub D15 connector for input and loop through.
- R, G, B, Hsync, Vsync : 0 to 1 Vpp $\pm 3\text{dB}$ 75 Ohm termination.
- Black level : 300mV.
- Sync-tip : 0V
- Resolution : SXGA and UXGA version available.
- Amber LED (upper LED on the front side) will be lit indicating recognition of film, either continuous or intermittent film detection.
- When placed in an input slot the green LED (lower LED on the front side) will be lit indicating that the system acknowledges the module.



Image 4-11

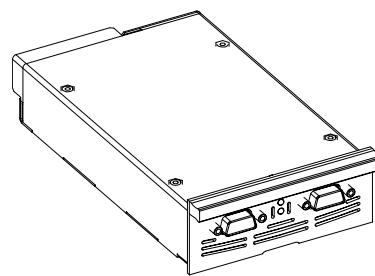


Image 4-12

Order info:

Article No.	Description
R9850950	D320PL Digitizer RGB analog SXGA input module
R9851710	D320PL Digitizer RGB analog UXGA input module

4.7 Dummy input module

Technical info

- Dimensions : 103 x 181 x 41(W x D x H)



Image 4-13

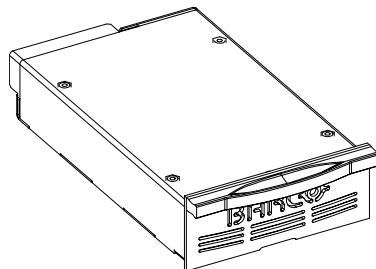


Image 4-14

Order info:

Article No.	Description
R9850930	D320PL Digitizer dummy input module

5. CABLES AND ACCESSORIES FOR THE D320PL DIGITIZER

5.1 Cables and accessories

List with available cables and accessories

Article No.	Description	Image
R326103	Power cable with CEE7 plug.	image 5-1
R3261115	Power cable with NEMA 5–15 plug.	image 5-2
B5580491	Data cable with RJ12 connectors for RS232 connection between local control PC and COM1 RS232 input port of the master Digitizer. Also used to connect the COM2 or COM3 port with the COM1 port of the following Digitizer.	image 5-3
Z3498421	RJ12–SUBD adapter.	image 5-4
R9827560	Data cable with SUBD connectors for RS232 connection between local control PC and COM1 RS232 input port of the master Digitizer.	image 5-5
Z3499209	One meter data cable with MDR connectors. Used to make a connection between the LOOP OUT connector of the previous Digitizer and the LOOP IN connector of the next Digitizer.	image 5-6
R9851210	Five meter data cable with DVI connectors. Used to connect the LED-WALL / PROJECTOR OUTPUT with an ILite display.	image 5-7
R9851216	Five meter data cable with one DVI connector and one waterproof MDR connector. Used to connect the LED-WALL / PROJECTOR OUTPUT with an DLite display.	image 5-8
B558072	DVI-VGA adaptor. Used to connect the LED-WALL / PROJECTOR OUTPUT connector on the rear side of the Digitizer with a VGA cable from the projector or monitor or plasma ...	image 5-9
R9851219	One meter data cable with one DVI connector and one MDR connector. Used to connect the LED-WALL / PROJECTOR OUTPUT with a Fiberlink Transmitter.	image 5-10



Image 5-1



Image 5-2



Image 5-3

5. Cables and accessories for the D320PL Digitizer



Image 5-4



Image 5-5



Image 5-6



Image 5-7



Image 5-8



Image 5-9



Image 5-10

6. CONFIGURATION SCHEMES

6.1 Stand alone configuration

Scheme

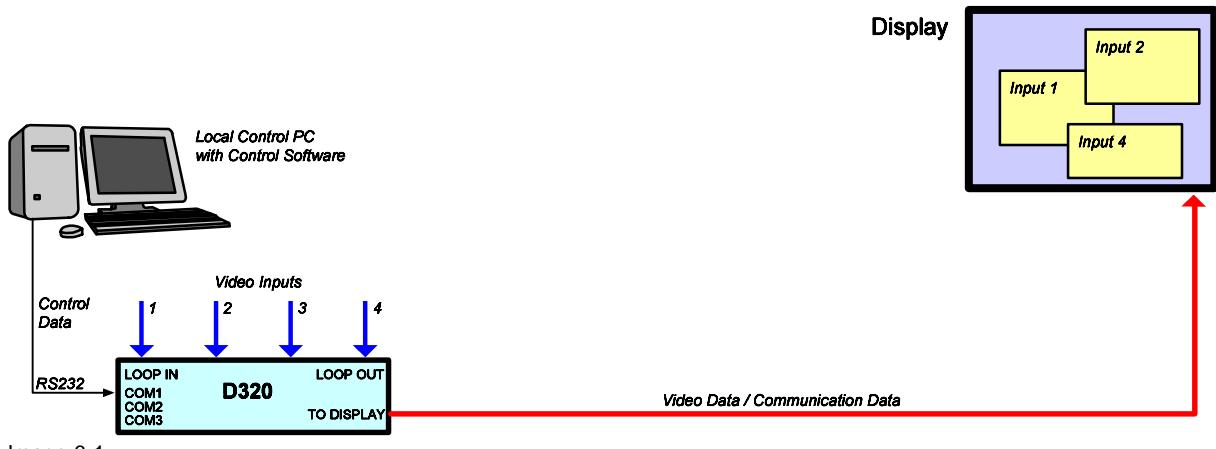


Image 6-1

One D320PL Digitizer is sufficient to drive one Barco LED wall with four different sources.

How to set up a D320PL stand alone configuration

1. Connect the RS232 communication port of the local control PC with the **COM1** RS232 input port of the D320PL Digitizer.
2. Connect the **LED-WALL / PROJECTOR OUTPUT** from the D320PL Digitizer with the display.
3. Provide the available video sources to the D320PL input modules.
4. Configure the D320PL Digitizer and the Display with the control software installed on the local control PC.

6.2 Chaining configuration

Scheme

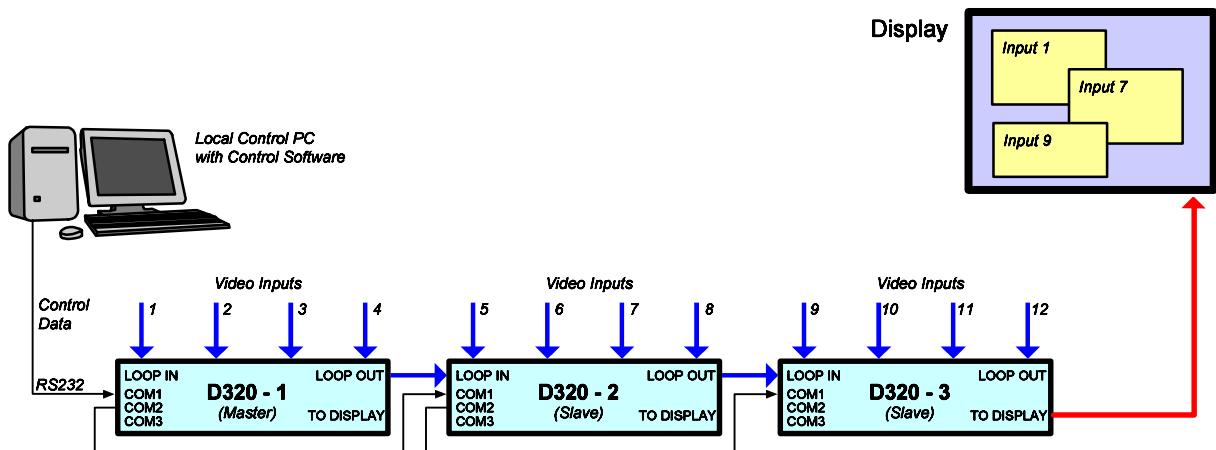


Image 6-2

6. Configuration schemes

The D320PL Digitizer can be chained in order to generate more windows on the output display (four windows per D320PL Digitizer).

How to set up a D320PL chaining configuration

1. Connect the RS232 communication port of the local control PC with the **COM1** RS232 input port of the first D320PL Digitizer. This Digitizer will act as the master, all following Digitizers are slaves.
2. Connect the **LOOP OUT** with the **LOOP IN** of the next D320PL Digitizer in the chain.
3. Connect the **COM2** RS232 output port with the **COM1** RS232 input port of the next D320PL Digitizer in the chain.
4. Repeat step 2 and 3 until all D320PL Digitizers in the chain are connected.
5. Connect the **LED-WALL / PROJECTOR OUTPUT** from the last D320PL Digitizer in the chain with the display.
6. Provide the available video sources to the input modules of the D320PL Digitizers.
7. Configure the D320PL Digitizers and the Display with the control software installed on the local control PC.

6.3 Stacking configuration

Scheme

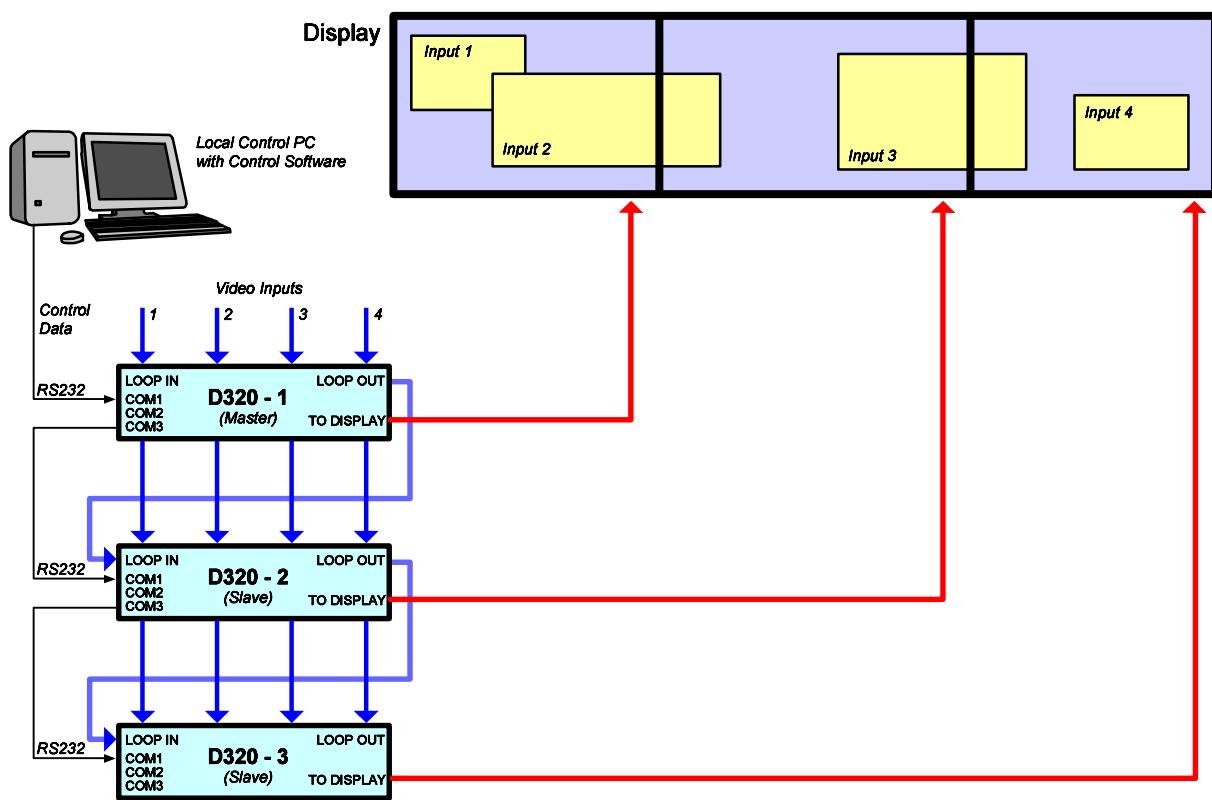


Image 6-3

For some large installations it is necessary to divide a complete large display into two or more screens depending on the used frame rate and the amount of pixels per line and the total lines of the complete display. For each screen a D320PL Digitizer is used in stacking configuration. Consult Barco n.v. for advise about the number of D320PL Digitizers to be stacked.

How to set up a D320PL stacking configuration

1. Connect the RS232 communication port of the local control PC with the **COM1** RS232 input port of the first D320PL Digitizer. This Digitizer will act as the master, all following Digitizers are slaves.
2. Connect the **LOOP OUT** with the **LOOP IN** of the next stacked D320PL Digitizer. This is necessary to avoid synchronization problems between the screens
3. Connect the **COM3** RS232 output port with the **COM1** RS232 input port of the next stacked D320PL Digitizer.
4. Connect the **LED-WALL / PROJECTOR OUTPUT** with the one screen.
5. Repeat step 2, 3 and 4 until all D320PL Digitizers are stacked.
6. Provide the available video sources to the input modules of one of the D320PL Digitizers and use the active loop through to connect the sources with the other stacked D320PL Digitizers. Make sure the same input source is used for the same input slot number on the different Digitizers.
7. Configure the D320PL Digitizers and the Display with the control software installed on the local control PC.

6.4 Combined chained and stacked configuration

Scheme

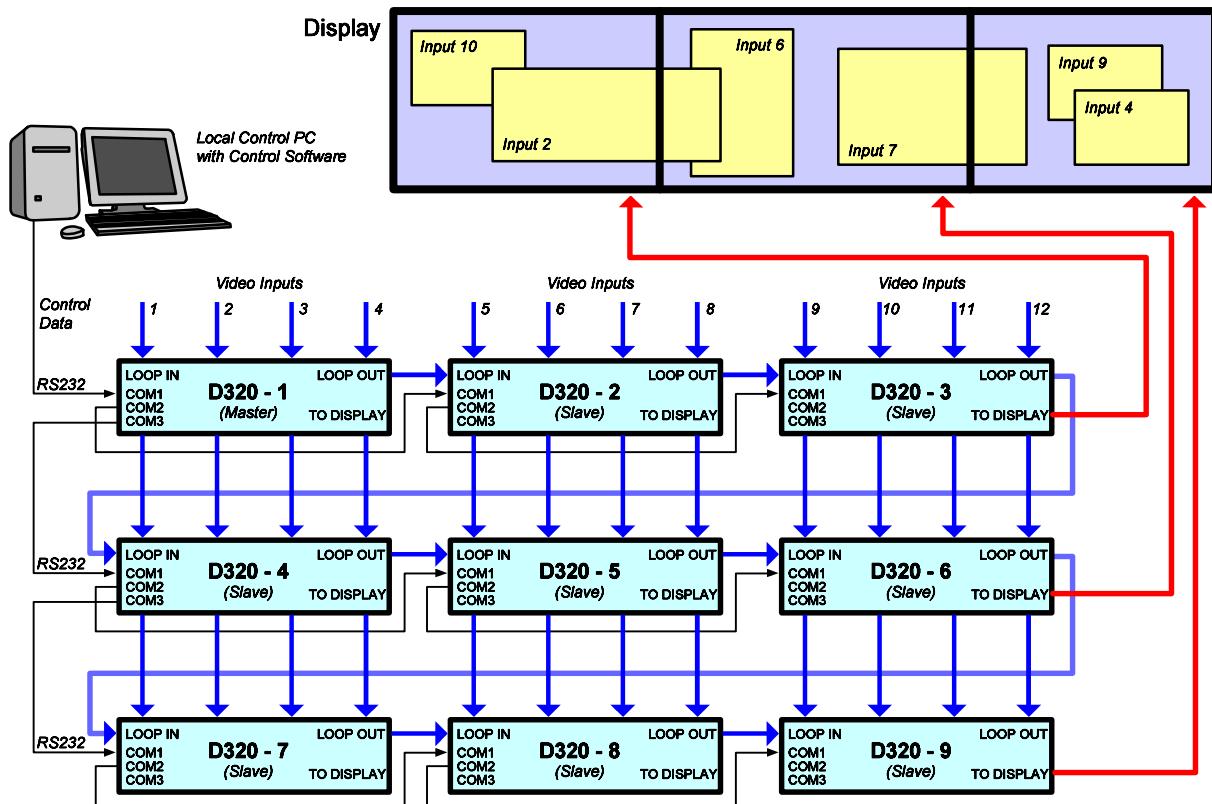


Image 6-4

It is possible to stack several chained D320PL Digitizers in order to create a larger display with more than 4 windows. On condition that each chain in the stacked configuration has the same number of D320PL Digitizers.

How to set up a mixed configuration

1. Connect the RS232 communication port of the local control PC with the **COM1** RS232 input port of the first D320PL Digitizer. This Digitizer will act as the master, all following Digitizers are slaves.
2. Connect the **LOOP OUT** of each previous Digitizer with the **LOOP IN** of the next Digitizer.
3. Connect the **LED-WALL / PROJECTOR OUTPUT** of the last Digitizer of each chain with a screen. Do this in a logical order to simplify the configuration with the control software. First chain drives first screen from the left, second chain drives second screen from the left and so on.
4. Connect each **COM2** RS232 output port of the previous chained Digitizer with the **COM1** RS232 input port of the next chained Digitizer.
5. Connect each **COM3** RS232 output port of the previous stacked Digitizer with the **COM1** RS232 input port of the next stacked Digitizer.
6. Provide the available video sources to the input modules and use the active loop through to connect the sources with the other stacked input modules.
Note: The control software will recognize the chained Digitizers as one Digitizer in a stacked configuration. But instead of only 4 input slots the software will detect a plural of 4 input slots. Make sure the same input source is used for the same input slot number on the different stacked Digitizers.
7. Configure the D320PL Digitizers and the Display with the control software installed on the local control PC.

7. CONTROL SOFTWARE

7.1 XLite Toolset

General introduction

The XLite Toolset (R9850042) is used to configure and control the D320PL Digitizer from basic set-up to advanced features such as chroma keying, alpha blending or window positioning. Refer to the manual (R5976380) for more information about the XLite Toolset.

7.2 Version Control Manager (VCM)

General introduction

The Version Control Manager (R9850044) is a stand alone program to update the software and firmware of D320PL Digitizer. The software runs from CD-ROM and acts like a wizard. So no installation is required. The software runs on a Windows platform. Refer to the manual (R5976407) for more information about the Version Control Manager.

7. Control Software

8. MAINTENANCE OF THE D320PL DIGITIZER

8.1 Cleaning the dust filter



The fan intake grill of the D320PL Digitizer has a retractable dust filter which must be checked for good functionality on regular basis. Never allow this filter to become blocked up.

How to clean the dust filter

1. Softly press down the lid of the dust filter at the rear side of the D320PL Digitizer and pull out the filter. (image 8-1)
2. Blow out all the dust from the filter and remove remaining dust with a dry cloth.
3. Place the clean dust filter back in the D320PL Digitizer.

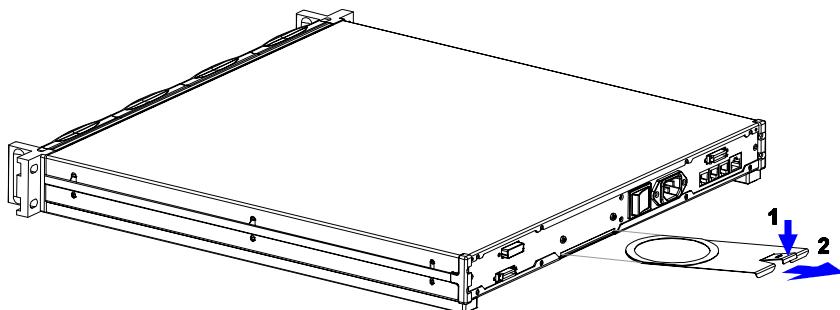


Image 8-1

8.2 Cleaning the cabinet



Do not use liquid cleaners or aerosol cleaners. Never use strong solvents, such as thinner or benzine, or abrasive cleaners, since these will damage the cabinet.

How to clean the cabinet

1. Unplug the D320PL Digitizer from the wall outlet before cleaning.
2. Clean the cabinet with a damp cloth. Stubborn stains may be removed with a cloth lightly dampened with mild detergent solution.



To keep the cabinet looking brand-new, periodically clean it with a soft dry cloth.

8. Maintenance of the D320PL Digitizer

9. OPTIONS

9.1 Overview

Order info:

Article No.	Description
R9851510	Climate Control Case for using the D320PL Digitizer outdoor

9. Options

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Revision Sheet

To:

► **Barco nv Events/Documentation**
Noordlaan 5, B-8520 Kuurne
Phone: +32 56.36.89.70, Fax: +32 56.36.88.24
E-mail: antoon.dejaegher@barco.com, Web: www.barco.com

From: _____

Date: _____

Please correct the following points in this documentation (**R5976470/01**):

page	wrong	correct